

CLAIMS

1. An air conditioner, comprising:

air paths (53, 54, ...) that communicate with either or both of a first space (311) and a second space (312);

5 an air conditioning element (81, 82, ...) for adjusting at least one of temperature and humidity of air flowing in the air paths (53, 54, ...) toward the second space (312);

a filter (301, 302, ...) for capturing a foreign matter in air flowing in the air paths (53, 54, ...) from the first space (311) toward the air conditioning element (81, 82, ...); and

air conveying means (95, 96) that conveys the air in the air paths (53, 54, ...),

10 wherein the air of which at least one of temperature and humidity is adjusted is supplied to the second space (312), and

normal operation in which air passes in the air paths (53, 54, ...) through the filter (301, 302, ...), and then, through the air conditioning element (81, 82, ...), to be supplied to the second space (312); and cleaning operation in which air passes in the air paths (53,

15 54, ...) through the air conditioning element (81, 82, ...), and then, through the filter (301, 302, ...), to be discharged to the first space (311) are performable.

2. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

20 the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311),

and

25 adsorption operation as the normal operation, in which the air from the first space (311) flows through the filter (301, 302) and the adsorption element (81, 82) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then, is supplied

to the second space (312); and regeneration operation as the cleaning operation in which the air from the second space (312) flows through the adsorption element (81, 82) and the filter (301, 302) in this order to regenerate the adsorption element (81, 82) by the air, and then, is discharged to the first space (311) are performed selectively.

5

3. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

10

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311),

a first space side filter (301a, 302a) as the filter is provided on the first space (311) side of the adsorption element (81, 82) in the air paths (53 to 56),

15

a second space side filter (301b, 302b) is provided on the second space (312) side of the adsorption element (81, 82) in the air paths (53 to 56), and

adsorption operation as the normal operation in which the air from the first space (311) flows through the first space side filter (301a, 302a), the adsorption element (81, 82), and the second space side filter (301b, 302b) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then, is supplied to the second space (312); and
20 regeneration operation as the cleaning operation in which the air from the second space (312) flows through the second space side filter (301b, 302b), the adsorption element (81, 82), and the first space side filter (301a, 302a) in this order to regenerate the adsorption element (81, 82) by the air, and then, is discharged to the first space (311) are performed selectively.

25

4. The air conditioner of Claim 2 or 3, wherein the first space serves as an outdoor space (311), while the second space serves as an indoor space (312), and

the adsorption operation dehumidifies the indoor space (312).

5. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

5 the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311), and

10 regeneration operation as the normal operation in which the air from the first space (311) flows through the filter (301, 302) and the adsorption element (81, 82) in this order to regenerate the adsorption element (81, 82) by the air, and then, is supplied to the second space (312); and adsorption operation as the cleaning operation in which the air from the second space (312) flows through the adsorption element (81, 82) and the filter (301, 302)
15 in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then is discharged to the first space (311) are performed selectively.

6. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

20 the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311),

a first space side filter (301a, 302a) as the filter is provided on the first space (311)
25 side of the adsorption element (81, 82) in the air paths (53 to 56),

a second space side filter (301b, 302b) is provided on the second space (312) side of the adsorption element (81, 82) in the air paths (56 to 56), and

regeneration operation as the normal operation in which the air from the first space (311) flows through the first space side filter (301b, 302b), the adsorption element (81, 82), and the second space side filter (301a, 302a) in this order to regenerate the adsorption element (81, 82) by the air, and then, is supplied to the second space (312); and adsorption operation as the cleaning operation in which the air from the second space (312) flows through the second space side filter (301a, 302a), the adsorption element (81, 82), and the first space side filter (301b, 302b) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then, is discharged to the first space (311) are performed selectively.

7. The air conditioner of Claim 5 or 6, wherein the first space serves as an outdoor space (311), while the second space serves as an indoor space (312), and the regeneration operation humidifies the indoor space (312).

8. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311), and

first adsorption operation as the normal operation in which the air from the first space (311) flows through the filter (301, 302) and the adsorption element (81, 82) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then, is supplied to the second space (312);

first regeneration operation as the cleaning operation in which the air from the second space (312) flows through the adsorption element (81, 82) and the filter (301, 302)

in this order to regenerate the adsorption element (81, 82) by the air, and then is discharged to the first space (311);

second adsorption operation as the cleaning operation in which the air from the second space (312) flows through the adsorption element (81, 82) and the filter (301, 302) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then is discharged to the first space (311); and

second regeneration operation as the normal operation in which the air from the first space (311) flows through the filter (301, 302) and the adsorption element (81, 82) in this order to regenerate the adsorption element (81, 82) by the air, and then, is supplied to the second space (312) are performed selectively.

9. The air conditioner of Claim 1, wherein an adsorption element (81, 82) having an adsorbent is provided as the air conditioning element,

the air paths (53 to 56) communicate with both the first space (311) and the second space (312),

the air conveying means (95, 96) conveys air from the first space (311) to the second space (312) and conveys air from the second space (312) to the first space (311),

a first space side filter (301a, 302a) as the filter is provided on the first space (311) side of the adsorption element (81, 82) in the air paths (53 to 56),

a second space side filter (301b, 302b) is provided on the second space (312) side of the adsorption element (81, 82) in the air paths (53 to 56), and

first adsorption operation as the normal operation in which the air from the first space (311) flows through the first space side filter (301a, 302a), the adsorption element (81, 82), and the second space side filter (301b, 302b) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then, is supplied to the second space (312);

first regeneration operation as the cleaning operation, in which the air from the

second space (312) flows through the second space side filter (301b, 302b), the adsorption element (81, 82), and the first space side filter (301a, 302a) in this order to regenerate the adsorption element (81, 82) by the air, and then is supplied to the first space (311);

5 second adsorption operation as the cleaning operation in which the air from the second space (312) flows through the second space side filter (301b, 302b), the adsorption element (81, 82), and the first space side filter (301a, 302a) in this order to allow the adsorption element (81, 82) to adsorb moisture in the air, and then is supplied to the first space (311); and

10 second regeneration operation as the normal operation in which the air from the first space (311) flows through the first space side filter (301a, 302a), the adsorption element (81, 82), and the second space side filter (301b, 302b) in this order to regenerate the adsorption element (81, 82) by the air, and then, is supplied to the second space (312) are performed selectively.

15 10. The air conditioner of Claim 8 or 9, wherein the first space serves as an outdoor space (311), while the second space serves as an indoor space (312), and

the first adsorption operation dehumidifies the indoor space (312), while the second regeneration operation humidifies the indoor space (312).

20 11. The air conditioner of Claims 2, 3, 5, 6, 8, or 9, wherein the first adsorption element (81) and the first filter (301) are provided in the first air path (53, 54), while the second adsorption element (82) and the second filter (302) are provided in the second air path (55, 56), and

25 first operation in which the adsorption operation for the first adsorption element (81) and the regeneration operation for the second adsorption element (82) are performed simultaneously; and second operation in which the regeneration operation for the first adsorption element (81) and the adsorption operation for the second adsorption element

(82) are performed simultaneously are performed alternately.

12. The air conditioner of Claim 1, wherein air flows from the first space (311) to the second space (312) in the first air path (251), while air flows from the second space (312) to the first space (311) in the second air path (252),

a rotating rotary adsorption element (253) that has an adsorbent and is arranged so as to cross the first air path (251) and the second air path (252) is provided as the air conditioning element,

a rotary filter (254) for rotating integrally with the rotary adsorption element (253) which is arranged on the first space (311) side of the rotary adsorption element (253) so as to cross the first air path (251) and the second air path (252) is provided as the filter, and

operation in which air flows through the rotary filter (254) and the rotary adsorption element (253) in this order in the first air path (251) to allow the rotary adsorption element (253) to adsorb moisture in the air, and then, is supplied to the second space (312) is performed as the normal operation, and simultaneously therewith, operation, in which air flows through the rotary adsorption element (253) and the rotary filter (254) in this order in the second air path (252) to regenerate the rotary adsorption element (253) by the air, and then, is discharged to the first space (311), is performed as the cleaning operation.

13. The air conditioner of Claim 1, wherein air flows from the second space (312) to the first space (311) in the first air path (251), while air flows from the first space (311) to the second space (312) in the second air path (252),

a rotating rotary adsorption element (253) that has an adsorbent and is arranged so as to cross the first air path (251) and the second air path (252) is provided as the air conditioning element,

a rotary filter (254) for rotating integrally with the rotary adsorption element (253)

which is arranged on the first space (311) side of the rotary adsorption element (253) so as to cross the first air path (251) and the second air path (252) is provided as the filter, and

operation in which air flows through the rotary adsorption element (253) and the rotary filter (254) in this order in the first air path (251) to allow the rotary adsorption element (253) to adsorb moisture in the air, and then, is discharged to the first space (311), is performed as the normal operation, and simultaneously therewith, operation in which air flows through the rotary filter (254) and the rotary adsorption element (253) in this order to in the second air path (252) regenerate the rotary adsorption element (253) by the air, and then, is supplied to the second space (312) is performed as the cleaning operation.

10

14. The air conditioner of Claim 12 or 13, wherein the first space serves as an outdoor space (311), while the second space serves as an indoor space (312).

15. The air conditioner of Claim 1, wherein air flows from the second space (312) to the first space (311) in the first air path (361), while air flows from the first space (311) to the second space (312) in the second air path, and

a total heat exchanger (363) for exchanging heat and moisture between the air flowing in the first air path (251) and the air flowing in the second air path (252) is provided as the air conditioning element.

20